

## Abstract

Mixtures containing vinyl-containing phosphonic acid, polymer electrolyte membranes comprising polyvinylphosphonic acid and their use in fuel cells.

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The present invention relates to a proton-conducting polymer membrane based on polyvinylphosphonic acid obtainable by a process comprising the steps.

A) Mixing a polymer with vinyl-containing phosphonic acid,

B) Forming a two-dimensional structure using the mixture according to

10 step A) on a carrier,

C) Polymerisation of the vinyl-containing phosphonic acid present in the two-dimensional structure according to step B).

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A membrane according to the invention may on account of its outstanding chemical and thermal properties be used in a wide range of applications and is particularly suitable as a polymer-electrolyte membrane (PEM) in so-called PEM fuel cells.